

## REPORT ON MACHINERY

No. 24222  
THU. SER 21. 1911

Received at London Office

Date of writing Report 19 When handed in at Local Office 19-9-11 Port of Hull  
 No. in Survey held at Hull & Selby Date, First Survey Feb. 9<sup>th</sup> Last Survey 16<sup>th</sup> Sept 1911  
 Reg. Book. 22 Hull on the Steel S. K. Michael Angelo (Number of Visits 37)  
 Master Built at Selby By whom built Cochrane & Sons - Tons { Gross 285  
 Engines made at } Hull By whom made } Messrs Charles D. Holmes & Co. L<sup>d</sup> when made 1911  
 Boilers made at } Hull By whom made } Charles D. Holmes & Co. L<sup>d</sup> when made 1911  
 Registered Horse Power Owners Pickering & Haldane D. I. Co. Port belonging to Hull  
 Nom. Horse Power as per Section 28 75 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 12 $\frac{3}{4}$ " - 22" - 36" Length of Stroke 24 Revs. per minute 113 Dia. of Screw shaft as per rule 7.4" Material of screw shaft as fitted 7.75"  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 36"  
 Dia. of Tunnel shaft as per rule 6.4" Dia. of Crank shaft journals as per rule 7.0" Dia. of Crank pin 7.25" Size of Crank webs 14" x 4 $\frac{1}{2}$ " Dia. of thrust shaft under collars 7.25" Dia. of screw 9'-0" Pitch of Screw 11'-0" No. of Blades 4 State whether moveable No Total surface 29 sq ft  
 No. of Feed pumps 1 Diameter of ditto 2 $\frac{3}{8}$ " Stroke 14 $\frac{1}{4}$ " Can one be overhauled while the other is at work —  
 No. of Bilge pumps 1 Diameter of ditto 2 $\frac{3}{8}$ " Stroke 14 $\frac{1}{4}$ " Can one be overhauled while the other is at work —  
 No. of Donkey Engines One Sizes of Pumps 6" x 4 $\frac{1}{2}$ " x 6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 2", One 2 $\frac{1}{2}$ ", One 3" In Holds, &c. One each 2", to fore hold, to slush well, and to space bunker, and ejector suction to these  
 No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 $\frac{1}{2}$ " Ejector  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line above  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes  
 What pipes are carried through the bunkers Hold suction How are they protected Wood casing  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes  
 Dates of examination of completion of fitting of Sea Connections 26.7.11 of Stern Tube 26.7.11 Screw shaft and Propeller 26.7.11  
 Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door worked from —

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Phoenix Act. Ges. Hordse.  
 Total Heating Surface of Boilers 1180 sq ft Is Forced Draft fitted No No. and Description of Boilers One cyl. Multi Single Ended  
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 10.7.11 No. of Certificate 1823  
 Can each boiler be worked separately — Area of fire grate in each boiler 36 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 3.97 sq ft Pressure to which they are adjusted 195 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 7" Mean dia. of boilers 12'-9" Length 10'-6" Material of shell plates S  
 Thickness 1 $\frac{5}{32}$ " Range of tensile strength 28 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.O.  
 long. seams D.A.S.L.R Diameter of rivet holes in long. seams 1 $\frac{3}{16}$ " Pitch of rivets 8" Lap of plates or width of butt straps 18"  
 Per centages of strength of longitudinal joint rivets 88.8 Working pressure of shell by rules 201 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring 7" x 1 $\frac{5}{32}$ " No. and Description of Furnaces in each boiler Two plain Material S Outside diameter 3'-8 $\frac{5}{8}$ "  
 Length of plain part top 64 $\frac{1}{2}$ " Thickness of plates crown 1 $\frac{3}{16}$ " Description of longitudinal joint Welded No. of strengthening rings 0  
 bottom 64 $\frac{1}{2}$ " bottom 1 $\frac{3}{16}$ " Working pressure of furnace by the rules 200 lbs Combustion chamber plates: Material S Thickness: Sides 23/32 Back 23/32 Top 23/32 Bottom 23/32  
 Pitch of stays to ditto: Sides 9 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ " Back 9 $\frac{1}{2}$ " x 9 $\frac{1}{8}$ " Top 10" x 8 $\frac{1}{2}$ " If stays are fitted with nuts or riveted heads No Working pressure by rules 203 lbs  
 Material of stays S Diameter at smallest part 1 $\frac{5}{8}$ " Area supported by each stay 87.8 Working pressure by rules 212 lbs End plates in steam space:  
 Material S Thickness 1 $\frac{3}{16}$ " Pitch of stays 18" x 18" How are stays secured D. 7' Working pressure by rules 206 lbs Material of stays S  
 Diameter at smallest part 6.33" Area supported by each stay 324 sq ft Working pressure by rules 203 lbs Material of Front plates at bottom S  
 Thickness 1 $\frac{5}{16}$ " Material of Lower back plate S Thickness 31/32 Greatest pitch of stays 15" x 9 $\frac{5}{8}$ " Working pressure of plate by rules 210 lbs  
 Diameter of tubes 3 $\frac{1}{2}$ " Pitch of tubes 4 $\frac{1}{8}$ " x 4 $\frac{1}{8}$ " Material of tube plates S Thickness: Front 1 $\frac{5}{16}$ " Back 7/8" Mean pitch of stays 9 $\frac{3}{4}$ "  
 Pitch across wide water spaces 14 $\frac{3}{4}$ " Working pressures by rules 283 lbs Girders to Chamber tops: Material S Depth and thickness of girder at centre 9 $\frac{1}{2}$ " x 2" Length as per rule 36" Distance apart 9" 10" Number and pitch of stays in each three 8 $\frac{1}{2}$ "  
 Working pressure by rules 215 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
 If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed  
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:—Two each top and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each air circulating feed and bilge pump valves, assorted iron and bolts + nuts of various sizes

The foregoing is a correct description, *p. pro* **CHARLES D. HOLMES & Co. Ltd.**

Manufacturer. *Arthur Holmes*

Dates of Survey while building { During progress of work in shops -- } 1911:—Feb 9. 14. 20. Apr 6. 20. May 8. 10. 15. 29. 31. Jun 7. 13. 16. 29. 30. July 7. 10. 11. 14. 17. 18.  
 { During erection on board vessel -- } July 21. 22. 26. 28. Aug 2. 10. 17. 21. 23 Sep. 2. 4. 6. 8. 9. 12. 16  
 Total No. of visits 37

Is the approved plan of main boiler forwarded herewith { Yes } *760-1 was forwarded with R.M. No 24206.*

Dates of Examination of principal parts—Cylinders 18. 7. 11 Slides 28. 7. 11 Covers 28. 7. 11 Pistons 28. 7. 11 Rods 28. 7. 11  
 Connecting rods 28. 7. 11 Crank shaft 21. 7. 11 Thrust shaft 17. 8. 11 Tunnel shafts \_\_\_\_\_ Screw shaft 18. 7. 11 Propeller 18. 7. 11  
 Stern tube 18. 7. 11 Steam pipes tested 4. 9. 11 Engine and boiler seatings 28. 8. 11 Engines holding down bolts 16. 9. 11  
 Completion of pumping arrangements 16. 9. 11 Boilers fixed 8. 9. 11 Engines tried under steam 9. 9. 11  
 Main boiler safety valves adjusted 9. 9. 11 Thickness of adjusting washers  $\frac{5}{16}$   $\frac{5}{16}$   
 Material of Crank shaft S Identification Mark on Do. { 755 B. 21. 7. 11 } Material of Thrust shaft S Identification Mark on Do. { 755 B. 21. 7. 11 }  
 Material of Tunnel shafts Identification Marks on Do. \_\_\_\_\_ Material of Screw shafts S Identification Marks on Do. { 755 B. 21. 7. 11 }  
 Material of Steam Pipes Solid drawn Copper Test pressure 400 lbs per sq. inch

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines and boilers of this vessel have been constructed under special survey in accordance with the Society's Rules. The materials and workmanship are good. The boiler tested by hydraulic pressure, and with the engines secured on board and tested under steam. They are now in good order and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of L.M.C. 9. 11 in the Register Book*

It is submitted that this vessel is eligible for THE RECORD. + LMC 9. 11

The amount of Entry Fee .. £ 1 : 0 : 0 When applied for, 20-9-1911  
 Special .. £ 11 : 5 : 0  
 Donkey Boiler Fee .. £ : : :  
 Travelling Expenses (if any) £ : 8 : 2 When received, 30/9/1911

Committee's Minute

Assigned

*James Barclay*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.